Félix Bos

06.23.59.69.95 – felix.bos001@gmail.com – github.com/Felix-Bos – Issy-les-Moulineaux

EDUCATION

Master's Degree Intensive Track of the MS2A (Computer science and mathematics) – ex M2A *2025 - present*
Sorbonne University
Main courses: statistical learning (G. Biau, M. Sangnier), deep learning (P. Gallinari), computer vision (M. Cord), reinforcement learning (O. Sigaud), LLM (L. Soulier), stochastic optimization (R. Berthier), non-parametric estimation (I. Castillo), modern statistical learning (I. Castillo, S. Coste), parallel programming on GPU (L. Abbas-Turki), large database management (O. Schwander)

Master's Degree in Actuarial Science (M1 and M2) *2024 - present*
Sorbonne University, ISUP
Main courses: stochastic finance, statistical learning, statistics, time series, extreme value theory, jump processes, rates modelling, financial mathematics, economics, portfolio management, law and insurance regulation, econometrics of insurance, VBA

Master's Degree in Mathematics (Data Science track) *2024 - 2025*
Sorbonne University
Main courses: advanced probability, statistics, probabilistic machine learning, non-parametric statistics, high-dimensional statistics, numerical optimization and data science, C++.

Bachelor's Degree in Mathematics and Computer Science *2021 - 2024*
Sorbonne University, ISUP
- Mathematics: probability, statistics, measure theory, functional analysis, numerical analysis, stochastic modeling, multivariate data analysis, optimization, algebra.
- Computer Science: Python, C, R, OCaml, Assembly, algorithms, discrete mathematics, functional programming, computer architecture, machine learning, data analysis.

EXPERIENCE

R&D Quant AI Intern *June - present*
Nexialog Consulting
- Missions across three business units: actuarial science, data science, and quantitative finance.
- Developed an AI-powered PDF Generator.
- Developed an Economic Scenario Generator (ESG).
- I'm currently researching the usage of AI in finance and insurance, especially in financial forecasting using generative AI such as GANs and Diffusion models. I'm exploring and applying new methods for socio-economic time series forecasting. The objective is to evaluate these methods in real-world applications such as insurance and quantitative finance. The final goal is to integrate these technologies into the real-world ESG software.

Actuarial ALM Intern *June - August 2024*
ADDACTIS
- Optimization of the internal ALM model using Addactis Modeling.
- Research and implementation of a method to transition from Best Estimate Liabilities (BEL) to Best Estimate of Guarantees (BEG), avoiding double projection of liability cash flows. Application of the methodology specifically to Euro fund savings.

Seasonal Job in Geomatics *July 2022*
SIG GPSO, Grand Paris Seine Ouest
- Analysis of cartographic data and visualization.
- Development and deployment of web pages (HTML/CSS).

PROJECTS

- **Economic Scenario Generator** – Development of an ESG tool for insurance and banking applications. The software, implemented in Python, allows users to generate projections under both real-world and risk-neutral measures. Users can select an economic context and choose the risk factors to forecast, such as equities, interest rates, credit spreads, carbon emissions, inflation, or real estate. They can also specify the stochastic models to be applied. For example, in the risk-neutral framework for equities, a Heston model is calibrated to the implied volatility surface of vanilla derivatives. *(Git, Python, Numba, Django, SciPy, QuantLib)*

- **Automatic PDF Generator using AI** – Development of an AI-powered PDF report generator for insurance applications. The user provides the previous year's report (N-1) together with new KPIs for the current year (N). By connecting locally to the Llama API via Ollama, or to any other API of choice, the system regenerates the PDF while preserving the original style (colors, fonts, layout). The AI automatically updates KPIs, analyzes the new data, rewrites the associated text, and adapts tables and charts to reflect the new KPIs. The project strictly followed clean software architecture principles (SOLID, OOP) and CI/CD best practices. *(Git, Python, VueJS, Vuetify, FastAPI, Ollama, Pytest, Docling)*
- **Option Pricing and Greeks Computation** – Implemented Black-Scholes and Monte Carlo methods to price options and compute Greeks. *(C++)*
- **GAN for Image Generation** – Developed a Generative Adversarial Network (GAN) to generate synthetic images. *(Python, PyTorch)*
- **GPT-2 from Scratch** – Implemented OpenAI's GPT-2 architecture from scratch, focusing on transformer mechanisms. *(Python, PyTorch)*
- **Neural Network Implementation Guide** – Wrote a comprehensive guide on implementing neural networks from scratch, comparing with TensorFlow.*(Python, Numpy)*
- **Data Analysis in R** – Performed PCA, K-means, KNN, GLM, and data imputation; developed an interactive application using R Shiny.*(R, R Shiny)*
- **Custom Machine Learning Library** – Created a machine learning library from scratch, mimicking basic functionalities of Scikit-learn. *(Python, Numpy)*
- **AI Gym Tracker** – Developed a computer vision–based gym tracker capable of counting repetitions and monitoring posture during exercises such as deadlifts. If the AI detects incorrect form, it provides real-time feedback (e.g., reminding the user to keep their back straight). *(Python, OpenCV, MediaPipe)*

SKILLS AND INTERESTS

Languages: French (Native), English (Professional proficiency), Chinese (Mandarin, High School)
IT Skills: Python, C++, C, R, OCaml, Assembly, HTML, CSS, JS, Django, VueJS, VBA, SOLID, OOP, CI/CD
Interests: Cooking, Mathematics, Computer Science, Deep Learning, Generative AI, Finance
Music: Oboe 13 years, Guitar, Singing
Sports: Running, Swimming, Weightlifting